that these companies have had substantial research programs to identify "nicotine analogues," chemicals that are closely related to nicotine. See FINDINGS § II.F.1., infra. Company documents reveal that both Philip Morris and Brown and Williamson were seeking analogues that would produce effects on the central nervous system similar to nicotine, that could be substituted for nicotine if nicotine-containing tobacco became regulated or unattractive to consumers, and that could be added to currently marketed products to enhance the effects of nicotine. See p. 289. These programs were also designed to identify substances that shared nicotine's "desired" effects on the central nervous system, without producing its undesirable effects on the cardiovascular system. See p. 290.

The industry's nicotine analogue research programs were expressly based on the companies' view that "[s]hould nicotine become less attractive to smokers, the future of the tobacco industry would become less secure A commercial threat would arise if either an alternative [nicotine] product became acceptable or the effect of nicotine was changed [by an antagonist to nicotine]." See p. 292. In 1968, BATCO researchers, acknowledging the critical importance of nicotine in tobacco, recommended that the industry search for nicotine substitutes with the "desired" pharmacological effects on the brain:

In view of its pre-eminent importance, the pharmacology of nicotine should continue to be kept under review and attention paid to the possible <u>discovery</u> of other substances possessing the <u>desired features of brain stimulation and stress-relief</u> without direct effects on the circulatory system. The possibility that nicotine and other substances together may exert effects larger than either separately (synergism) should be studied and if necessary the attention of Marketing Departments should be drawn to these possibilities.

<u>See p. 290</u> (emphasis added). Various BATCO documents show that the company had an extensive program to identify nicotine analogues. <u>See FINDINGS § II.F.1., infra.</u>